

In the Claims:

The following claims listing supercedes all prior listings.

1. (Currently Amended) A method of processing images ~~in images~~ comprising curvilinear structures, the method comprising the ~~following parallel steps of:~~

~~_____ a step of filtering said images;~~
~~_____ a decision step intended to select the~~selecting
pixels within said images~~of the image~~ pertaining to an interesting
curvilinear structure, and

~~_____ said method being characterized in that the decision step~~
~~comprises, in parallel, a sub-step of estimating the~~ direction of
each image pixel and as well as a sub-step of analyzing the
connectivity of neighboring pixels based on the estimated their
directions for each said image pixel, and

~~_____ at the end of the sub-step of estimating the direction of~~
~~each image pixel, and a sub-step of selecting groups of image~~
pixels as a function of the result of said ~~sub-step of analyzing the~~
~~connectivity of neighboring pixels based on their directions, at~~
~~the end of said step of filtering.~~

2. (Currently Amended) A method of processing images as claimed in claim 1, wherein the step characterized in that said step of
filtering said images further comprises a step of ~~comprises a sub-~~
~~step of selecting pixels, the selected pixels of an image being~~
~~those that have displaying a contrast which is larger than X times~~
the variance of the noise in the image, where X is ~~being a user-~~
adjustable parameter.

3. (Currently Amended) A method of processing images as claimed in claim 1, wherein ~~characterized in that~~ said step of filtering said images uses two neighborhoods (N1) and (N2), of a given pixel,

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wherein a the gap (GAP) extending between these neighborhoods
is being user-adjustable.

4. (Currently Amended) A method of processing images as claimed in claim 3, wherein a ~~characterized in that the height (H) and a the~~
length (L) of said neighborhoods are adjustable~~user-adjustable.~~

5. (Currently Amended) A method of processing images as claimed in claim 1, ~~wherein characterized in that said step~~~~sub-step of~~
analyzing the connectivity of neighboring pixels based on their
directions~~uses a neighborhood of a given pixel, which this~~
neighborhood extends extending in the direction of the pixel
considered and, this direction being determined during the step~~said~~
~~sub-step of estimating the direction of each pixel of the image.~~

6. (Currently Amended) A method of processing images as claimed in claim 5, wherein ~~characterized in that the length of said~~
neighborhood is adjustable~~user-adjustable.~~

7. (Currently Amended) A method of processing images as claimed in claim 1, wherein the step of selecting ~~characterized in that said~~
~~sub-step of selecting groups of pixels uses an adjustable~~~~user-~~
adjustable parameter M, which this parameter M allow~~s following~~
computation of a the minimal sum of contrasts of the pixels of a
given group required for the this group to be selected.

8. (Currently Amended) A method of processing images as claimed in claim 1, further including:
intended to detect artery anomalies, characterized in
that it further comprises the steps of:
skeletonizing said images to for extracting a skeleton of
curvilinear structures,

measuring artery diameters of arteries found in said skeletonized images,

detecting arterial anomalies~~taking decisions~~ on the basis of the diameters and ~~rules predefined~~ rules~~by an operator.~~

9. (Currently Amended) A method of processing images, comprising the steps of:

~~acquiring intended to detect artery anomalies in three dimensions, having at least a first digitized image and a second digitized image of an the same artery to be analyzed for artery anomalies,~~
~~as inputs, characterized in that it comprises, in series, a method of:~~

~~processing images as claimed in claim 1, applied to the first and the second digitized image, for giving a first and a second processed image, and the steps of:~~

filtering said first and second digitized images;
selecting pixels within said filtered, digitized images pertaining to a curvilinear structure, and

estimating a direction of each selected pixel and analyzing a connectivity of neighboring pixels based on the estimated directions for each selected pixel, and

selecting groups of pixels as a function of the result of said analyzing,

~~skeletonizing, applied to the first and the second processed images to extract, for extracting a first skeleton of the curvilinear structures of the first processed image, and a second skeleton of the curvilinear structures of the second processed image,~~

~~reconstructing a 3D image of the artery, based on the first and the second processed image and their skeletons, for giving a 3D image of the artery,~~

measuring artery diameters, within based on the
reconstructed 3D image of the artery, and
determining the existence of artery anomalies based on
said taking decisions on the basis of the diameters and rules
predefined by an operator.

10. (Currently Amended) A computer readable medium comprising a
set of computer readable instructions, which computer readable
instructions may be processed by a computer to implement program
which can be carried out by means of a processor, intended to
perform a method of processing images as claimed in claim 1.

11. (Currently Amended) An image-processing system comprising a
programmable computer programmed with a set of instructions for
carrying out the method as set forth in claim 1, including intended
to perform a computer program as claimed in claim 10, or a circuit
intended to perform the method of processing images as claimed in
any one of claims 1 to 9, a device for projecting images processed
thereby, and in accordance with said method and possibly a device
for storing said images.

12. (Cancelled)